

We claim:-

1. A syntactic polyurethane obtainable by reacting
 - a) a polyisocyanate component with
 - 5 b) a polyol component, the polyol component b) comprising the constituents
 - b1) a polyetherpolyol based on a difunctional initiator molecule,
 - b2) a polyetherpolyol based on a trifunctional initiator molecule and
 - b3) a chain extender,in the presence of
 - 10 c) hollow microspheres.
2. A syntactic polyurethane according to claim 1, wherein the polyol constituent b)2 comprises the constituents
 - 15 b2-1) a polyetherpolyol based on a trifunctional initiator molecule having an average molecular weight of from 400 to 3500 g/mol and
 - b2-2) a polyetherpolyol based on a trifunctional initiator molecule having an average molecular weight of from more than 3500 to 8000 g/mol.
3. A syntactic polyurethane according to claim 1 or 2, wherein the polyol component
 - 20 b) additionally contains a constituent
 - b4) a polyetherpolyol based on an initiator molecule which is tetrafunctional or has a higher functionality.
4. A syntactic polyurethane according to any of claims 1 to 3, wherein the individual
 - 25 constituents of the polyol component b) are selected so that the polyol component b) has a viscosity at 25°C of less than 500 mPa.s, measured according to DIN 53019.
5. A syntactic polyurethane according to any of claims 1 to 4, wherein the
 - 30 component
 - b1) is present in an amount of from 20 to 60% by weight, the component
 - b2) is present in an amount of from 20 to 60% by weight, and the component
 - b3) is present in an amount of from 5 to 25% by weight,
 - 35 based on the total weight of the polyol component b).
6. A process for the preparation of syntactic polyurethanes by reacting
 - a) a polyisocyanate component with
 - b) a polyol component, the polyol component b) comprising the constituents
 - 40 b1) a polyetherpolyol based on a difunctional initiator molecule,
 - b2) a polyetherpolyol based on a trifunctional initiator molecule and
 - b3) a chain extender,in the presence of

c) hollow microspheres.

7. The use of a syntactic polyurethane according to any of claims 1 to 5 for insulating offshore pipes.
- 5 8. An offshore pipe composed of
 - (i) an inner pipe and, adhesively applied thereto,
 - (ii) a layer of a syntactic polyurethane according to any of claims 1 to 5.
- 10 9. An offshore pipe according to claim 8, wherein the layer (ii) of syntactic polyurethane has a thickness of from 5 to 200 mm.
10. A process for the production of offshore pipes according to claim 8 or 9, comprising the steps
 - 15 1) provision of an inner pipe which is to be coated with syntactic polyurethane,
 - 2) rotation of the pipe to be coated and
 - 3) application of an unreacted reaction mixture for the production of the layer of syntactic polyurethane, comprising the components a), b) and c), to the
 - 20 rotating pipe.